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Development of a Computerized Resuscitation Kit Management System in a Local Hospital in Hong Kong
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Introduction
Medications required for resuscitation are often prepared by pharmacy in standard kits, known as Resuscitation kits (R-Kits), to facilitate timely delivery and accessibility in case of need. As stock movement patterns of items inside the R-Kits are highly different than normal ward stock items, contents of R-Kits needs to be highly traceable to facilitate recalls due to various reasons e.g. item expiry or batch recall. This is traditionally done by paper documentation, which is inefficient and error-prone.

Objectives
1. To enable electronic recording, easy retrieval and monitoring of Resuscitation Kits (R-Kits) transactions
2. Facilitate stocktaking, batch traceability and product recall of R-Kits.

Methodology
A computerized R-Kit management programme was designed using Microsoft Access 2007. Pre-implementation study was conducted for two weeks (6th-17th February, 2017) to collect baseline performance data on R-kit exchange, preparation, batch recall and expiry date checking. After the development of the programme, training were provided to pharmacy staff, and existing R-Kits log data were converted to the new R-Kit program and counterchecked before implementation. The system was put into live run on 13th July, 2017, with prior notice to medical and nursing staffs. Post implementation study was subsequently conducted for two weeks (18th-29th September, 2017) to assess performance the new programme. Comparison of pre-versus post-implementation data was done using Student's T-test, with statistical significance set at $p < 0.05$ level.

Result
With the implementation of the electronic R-Kit management programme, average time required for exchanging one R-Kit was improved from 4.85 minutes to 2.5 minutes (48% reduction; $p < 0.001$). Time for assembling and checking one R-Kit remained comparable (10.7 minutes versus 11.1 minutes; $p = 0.602$). Errors during assembling were eliminated (5 errors versus none). Efficiency for lot tracing and expiry date checking also improved markedly, with instant result provided by the new

system versus 21.6 minutes and 32.8 minutes required for staff searching through one specific lot and recall all kits with expiry on or before a specified date respectively.